



FLUKE®

Biomedical

QA-ES Series II

Electrosurgery Analyzer

Technical Data



QA-ES Series II analyzes electrosurgical units quickly and accurately.

A wide load-resistance range provides 128 user-selectable loads, including very low loads for testing many of today's ESUs.

An accuracy of $\pm 2\%$ of reading down to 20 mA guarantees reliable high-frequency leakage results. With capability to run an automatic-power-distribution test in as little as 1 minute, the QA-ES works fast so technicians save time.

An Ansur QA-ES software plug-in allows users to create and automatically run tests, capture data, and produce easy-to-read reports with a PC.

Key features

- Automatic power distribution measurement, including power, current, peak-to-peak voltage (closed load only), and crest factor
- Oscilloscope output
- High-frequency leakage measurements with accuracy of $\pm 2\%$ of reading
- 128 internal user-selectable test loads from 10 Ω to 5200 Ω
- Foot-switch output for triggering the ESU under test
- Ansur QA-ES software plug-in for automated test protocols
- Large display
- RS-232 and Centronic-Printer interface

Technical specifications

Generator output

Continuous operation

Continuous measurement of power, current, peak-to-peak voltage (closed load only), and crest factor

Single operation

Single measurement after the set delay time of the ESU output of power, current, peak-to-peak voltage (closed load only), and crest factor

Power distribution

Automatic measurement of power, current, peak-to-peak voltage (closed load only), and crest factor through a user-selectable load range

RF leakage current

Provides connections and load configurations to measure HF leakage from both grounded and isolated equipment

RECQM

Test the "return electrode control quality monitoring" using the QA-ES internal loads

Modes of operation

Manual or remote controlled (via Ansur)

Measurement

True-rms value of applied waveform

RMS bandwidth

30 Hz to 10 MHz (-3 dB) for instrumentation only
30 Hz to 2.5 MHz (-3 dB) with loads

Low frequency filter

100 Hz filter to avoid low-frequency disturbance or interference

Current

20 mA to 2200 mA

Current accuracy

20 mA to 2200 mA $\pm 2\%$ of reading

Load resistance

10 Ω to 2500 Ω in step of 25 Ω (@ dc)
2500 Ω to 5200 Ω in step of 100 Ω (@ dc)



Additional fixed load

200 Ω 400 W for 30 s; max 15 % duty cycle

Crest factor

The higher of the two peak voltage measurements is used for computation

Range

1.4 to 16 (V peak/V rms)

Foot-switch output

The foot switch output can be used to trigger the electrosurgical unit

Peak-to-peak voltage

0 kV to 10 kV (closed load only)
accuracy: $\pm 10\%$

Note: Measurement is taken between the active and dispersive electrodes with closed load only.

Oscilloscope output

5 V/A uncalibrated, 100 mA RF current
minimum input

Ansur QA-ES plug-In

Remote control

All functions and tests in QA-ES may be performed from the PC

User-programmable test sequences

Allows unlimited numbers of test sequences with user-programmable templates and test limits. These tests include power distribution test, output test, HF leakage, and RECQM verification

Storage and recall

Protocol formats and data may be stored, recalled, printed out, or transferred

Temperature

Operating

15 °C to 35 °C (59 °F to 95 °F)

Storage

0 °C to 50 °C (32 °F to 122 °F)

Display

LCD graphic display

Alphanumeric format

8 lines x 40 characters

Graphic mode

240 x 64 pixel matrix

Display control

5 F-keys, enter, cancel, control knob, and an encoder

Data input/outputs

Parallel printer port and bidirectional RS-232

Power

115/230 V ac; 48 Hz to 66 Hz, 35 VA

Housing

Metal case

Dimensions (WxDxH)

39.5 cm x 34.2 cm x 13.2 cm
(15.6 in x 13.5 in x 5.2 in)

Weight

9.8 kg (21.6 lb)

Ordering Information

Models

- 2649769** QA-ES Series II 115 V Electrosurgery Analyzer (US)
- 2651725** QA-ES Series II 230 V Electrosurgery Analyzer (Schuko)
- 2770445** QA-ES Series II 230 V Electrosurgery Analyzer (UK)
- 2770450** QA-ES Series II 230 V Electrosurgery Analyzer (Australia)
- 3096390** QA-ES Series II 100 V Electrosurgery Analyzer (Japan)

Standard accessories

- 2716044** Manual on CD
- 2716032** Manual Hard Copy
- 2772171** ESU-Dispersive Safety Lead
- 2772180** ESU-CQM Safety Lead
- 2772209** ESU-Jumper Safety Lead
- Power Cord (country specific)
- 2826194** Test Lead with stackable plugs
- 1903307** Test Lead Set with retractable sheaths
- 1610159** Sure-Grip Large Alligator Clip Set

Optional accessories

- 2461794** Carrying Case
- 2461802** Ansur Test Software, QA-ES Plug-in License
- 2461993** Data Transfer Cable, RS-232
- 2716059** Calibration Manual
- 2523266** Clamp, crocodile style, grip C, black
- 2523275** Clamp, crocodile style, grip C, red

About Fluke Biomedical

Fluke Biomedical is the world's leading manufacturer of quality biomedical test and simulation products. In addition, Fluke Biomedical provides the latest medical imaging and oncology quality-assurance solutions for regulatory compliance.

Today, biomedical personnel must meet the increasing regulatory pressures, higher quality standards, and rapid technological growth, while performing their work faster and more efficiently than ever. Fluke Biomedical provides a diverse range of software and hardware tools to meet today's challenges.

Fluke Biomedical Regulatory Commitment

As a medical test device manufacturer, we recognize and follow certain quality standards and certifications when developing our products. We are ISO 9001 certified and our products are:

- CE Certified, where required
- NIST Traceable and Calibrated
- UL, CSA, ETL Certified, where required
- NRC Compliant, where required

Fluke Biomedical.

Better products. More choices. One company.

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